REMARKS

This Amendment responds to the Office Action dated February 9, 2004 in which the Examiner rejected claims 1-4, 11 and 13-15 under 35 U.S.C. §102(b) rejected claims 6, 8-10, 12 and 16 under 35 U.S.C. §103 and objected to claims 5, 7 and 20-21 as being dependent upon a rejected base claim but would be allowable is rewritten in independent form.

As indicated above, claim 1 has been amended to make explicit what is implicit in the claims. Applicants respectfully submit that the amendment is unrelated to a statutory requirement for patentability and does not narrow the literal scope of the claims.

Claims 1 claims a dry forming apparatus comprising a mold-transfer mechanism, a pressing driving mechanism, a connecting mechanism and a unit holding mechanism. The mold-transfer mechanism is for transferring a mold containing a die and lower punch units at least between a powder supply stage, a pressing stage, and a formed-product removing stage. The pressing driving mechanism, having upper punch units, is for driving the upper and lower punch units for pressing in the pressing stage. The connecting mechanism is for connecting lower punch units to the pressing driving mechanism when the mold is transferred to the pressing stage, and is for releasing the connection of the lower punch units. The unit holding mechanism is for holding the lower punch units while the units are transferred to the next stage.

Through the structure of the claimed invention having a mold-transfer mechanism for transferring a mold and lower punch units between a plurality of stages, a connecting mechanism for connecting the lower punch units to a press-

driving mechanism having upper punch units and for releasing the connection of the lower punch units and having a unit holding mechanism for holding the lower punch units while the units are transferred to the next stage, as claimed in claim 1, the claimed invention provides a dry-forming apparatus in which positional accuracy and height accuracy of the punch units at forming can be enhanced while being able to handle different types of formed products. The prior art does not show, teach or suggest the invention as claimed in claim 1.

Claims 1-4, 11 and 13 were rejected under 35 U.S.C. §102(b) as being anticipated by *Maekawa et al.* (U.S. Patent No. 3,663,147).

Maekawa et al. appears to disclose a rotary press molding apparatus capable of a high-speed compression molding operation while suppressing lamination and capping of the finished tablet. (col. 1, lines 42-44) The upper punch members are represented by numerals 201 through 217 and the lower punch members by numerals 301 through 317, and the die cavities by 401 through 417. The interior of each die cavity is able to conform to the heads of said upper and lower punch members. Rotational movement caused by an unshown driving mechanism causes a circular movement of each pair of said punch members and dies around the circumference in a horizontal plane.

Although the rotational structure is shown in FIG. 6, as having a laminated construction composed essentially of three stories, namely the upper story or upper punch block 51, holding the upper punch members 201 through 217 while permitting their vertical movement, the middle story or die block 52 fixedly holding the die cavities 401 through 417 and the lower story or lower punch block 53 holding the lower punch members 301 through 317 equally permitting their vertical sliding

movement, the structure is practically an integral member, or at least functions as one member, because its purpose is to enable the transferring of each combination of punch members and die in parallel while keeping them in a single vertical line. Along the track of the circular movement of the punch members in the horizontal plane, there is provided two pairs of compression rollers 61 62 and 63 64, each pair being spaced opposed with a roller on either side of the rotational structure, and capable of exerting compressing pressure upon the punch members. In other words, the illustrated apparatus has two major sequentially operable compressing stages. (col. 3, lines 20-48) In order to enable such incidental operation, tracking rail 7 and overriders 81 and 82, cooperating with said punch members, are installed on the stationary frame 1 of the apparatus in accordance with their required function. Moreover, a feeder 9 for charging material 8 to be molded into the die cavity and a deflecting baffle 11 capable of deflecting the tablet 10 molded and thrust up over the surface of the die block 52, are provided and pertinent positional relationships are maintained between them. (col. 3, lines 56-65) The die cavity supplied with the material 8 to be molded by the feeder 9 at the position 401 at the left extreme of FIG. 7, combines with the upper and lower punch members to compress the material at the positions 203 through 205, 303 through 305 and 403 through 405 while being transferred to the right in the drawing to the positions 207, 307 and 407 where the material is subjected to a compression by the rollers 61 and 62. The combination of the punch members and die further travels to the right while holding the material once compressed therein and is subjected again to a compression by the rollers 63 and 64 at their positions 211, 311 and 411 and further continues to travel while the lower punch members is thrust up together with the molded tablet 10 and the upper

punch members by the overriders 81 and 82 which contact the root portions of the lower punch members at the positions 312 through 315. The upper punch member also begins to be thrust up by the tracking rail 7 at the positions from 214 et. seq. and finally comes to a position where it leaves an adequate clearance above the molded article 10 which is pushed up over the surface of the middle story or die block 52 of the rotational structure at the positions 215 et.seq. In this condition, the molded article 10 is swept away from the track by the deflecting baffle 11 and is transferred to an unshown receptacle or subsequent processes. Upper and lower punch members, each provided with a roller whose diameter is nearly equal to that of the punch member therefor as is indicated by numerals 201a through 217a and 301a through 317a, are employed in addition to the above described conventional members and construction. Simultaneously, a plurality of semi-annular tracking rails 121, 122, 123 and 124, cooperative with said auxiliary rollers, are installed on the stationary frame 1 of the apparatus. The tracking rail 121 contacts the upper punch members in the positions 204 through 210 at their rollers 204a through 210a while the tracking rail 123 contacts the lower punch members in the positions 304 through 311 at their rollers 304a through 311a. Furthermore, the tracking rail 122 contacts the upper punch members in the positions 212 through 214 at their rollers 212a through 214a while the tracking rail 124 contacts the lower punch members in the positions 312 through 314 at their rollers 312a through 314a. (col. 3, line 73 through col. 4, line 41)

Thus, *Maekawa et al.* merely discloses a punch-and-die type rotary tablet machine having auxiliary rollers attached to each of the punches and tracking rails capable of exerting pressure on the punches through the auxiliary rollers while

transferring the upper and lower punches. Thus, nothing in *Maekawa et al.* shows, teaches or suggests a) a mold-transfer mechanism transferring lower punch units between a plurality of stages, b) a connecting mechanism for connecting and releasing the lower punch units to/from a pressing driving mechanism having upper punch units and c) a unit holding mechanism for holding the lower punch units when the units are transferred to the next stage as claimed in claim 1. Rather, *Maekawa et al.* merely discloses transferring both upper and lower punch members through tracking rails.

Since nothing in *Maekawa et al.* shows, teaches or suggests a) a mold-transfer mechanism transferring lower punch units between a plurality of stages, b) a connecting mechanism connecting and releasing lower punch units to/from a punch driving mechanism having upper punch units and c) a unit holding mechanism holding the lower punch units while transferring to the next stage as claimed in claim 1, Applicants respectfully request the Examiner withdraws the rejection to claim 1 under 35 U.S.C. §103(b).

Claims 2-4, 11 and 13 depend from claim 1 and recite additional features. Applicants respectfully submit that claims 2-4, 11 and 13 would not have been anticipated by *Maekawa et al.* within the meaning of 35 U.S.C. §102(b) at least for the reasons as set forth above. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 2-4, 11 and 13 under 35 U.S.C. §102(b).

Claims 1, 3-4, 11 and 13-15 were rejected under 35 U.S.C. §102(b) as being anticipated by *Hinzpeter et al.* (U.S. Patent No. 5,350,548).

Hinzpeter et al. appears to disclose a method of making two-layer tablets or pellets in a twin rotor pressing machine. (col. 1, lines 7-9) The structure of the

pressing machine is shown in more detail in FIG. 3. A disk-shaped die rotor 52 which is driven to rotate about a vertical axis includes a row of circumferentially spaced die bores 54 extending through die rotor 52 parallel to the vertical axis of the rotor. Each die bore 54 is associated with a pair of compression plungers 54, 56. Upper compression plungers 56 are mounted for axial movement in a disk member 58 which is driven to be rotated synchronously with die rotor 52. In a similar manner lower compression plungers 54 are mounted for axial reciprocal movement in a disk member 60 which is also driven to be rotated synchronously with die rotor 52. (col. 5, lines 27-39) The first loading station 32 includes a loading device 62 (not described in more detail) which is disposed above die rotor 52 and which loads e.g. powdery material into the die bores 54 passing by. The loading depth is determined by the positions of the lower plungers 53 which initially pass by a stationary cam segment 66 and thereafter by a movable cam segment 68 arranged to be actuated by a solenoid adjusting device 69 (not described in more detail). The cam segment 68 defines the final positions of the lower plungers 53 which progressively withdraw from the die bores 54 while they are moving along the cam segment 66. Adjustment of the cam segment 68 allows to determine the loading depth and accordingly the metering of the quantity of material loaded into the die bores. A plate 66a following the loading device 62 and supported on disk rotor 52 prevents escape of material from die bores 54 until the upper plungers 56 cooperate with the die bores 54 by means of an upper cam segment 68a of precompression station 34. The precompression means of precompression station 34 are comprised of precompression rollers 70, 72 which determine the amount of compression of the material loaded into die bores 54. The final thickness of the pressed articles is

determined by adjustable main compression rollers 74, 76 in the main compression station 36. (col. 5, lines 43-68)

Thus, *Hinzpeter et al* merely discloses a pair of compression plungers 54, 56 which are each mounted for axial movement. Nothing in *Hinzpeter et al* shows, teaches or suggests a) a mold-transfer mechanism for transferring lower punch units between a plurality of stages, b) a connecting mechanism for connecting and releasing the lower punch units to the press driving mechanism having upper punch units and c) a unit holding mechanism for holding the lower punch units which the units are transferred to the next stage as claimed in claim 1. Rather, *Hinzpeter et al* merely discloses compression plungers 54 and 56.

Since nothing in *Hinzpeter et al* shows, teaches or suggests a) a mold-transfer mechanism for transferring lower punch units between a plurality of stages, b) a connecting mechanism for connecting and releasing lower punch units to a pressing driving mechanism having upper punch units and c) a unit holding mechanism for holding the lower punch units while transferring to a next stage as claimed in claim 1, Applicants respectfully request the Examiner withdraws the rejection to claim 1 under 35 U.S.C. §102(b).

Claims 3-4, 11 and 13-15 depend from claim 1 and recite additional features. Applicants respectfully submit that claims 3-4, 11 and 13-15 would not have been anticipated by *Hinzpeter et al* within the meaning of 35 U.S.C. §102(b) at least for the reasons as set forth above. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claim 3-4, 11 and 13-15 under 35 U.S.C. §102(b).

Claims 6 and 10 were rejected under 35 U.S.C. §103 as being unpatentable over *Maekawa et al.* or *Hinzpeter et al* in view of *Hudson* (U.S. Patent No.

4,789,323). Claims 8-9 were rejected under 35 U.S.C. §103 as being unpatentable over *Maekawa et al.* or *Hinzpeter et al.* in view of *Hudson* and further in view of *Nakagawa et al.* (U.S. Patent No. 5,647,410). Claim 12 was rejected under 35 U.S.C. §103 as being unpatentable over *Maekawa et al.* or *Hinzpeter et al.* in view of *Bogue et al.* (U.S. Patent No. 5,653,926) and claim 16 was rejected under 35 U.S.C. §103 as being unpatentable over *Maekawa et al.* or *Hinzpeter et al.* in view of *Shapiro* (U.S. Patent No. 3,677,673).

Applicants respectfully traverse the Examiner's rejection of the claims under 35 U.S.C. §103. The claims have been reviewed in light of the Office Action, and for reasons which will be set forth below, Applicants respectfully request the Examiner withdraws the rejection to claims and allows the claims to issue.

As discussed above, since nothing in *Maekawa et al.* or *Hinzpeter et al.* show, teach or suggest the primary features as claimed in claim 1, Applicants respectfully submit that the combination of the primary references with the secondary references will not overcome the deficiencies of the primary references. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 6, 8-10, 12 and 16 under 35 U.S.C. §103.

Since objected to claims 5, 7 and 20-21 depend from allowable claims, Applicants respectfully request the Examiner withdraws the objection thereto.

New claim 22 has been added and recites additional features. Applicants respectfully submit that this claim is also in condition for allowance.

Thus is now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason the Examiner feels that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the Applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the current set shortened statutory period, Applicant respectfully petitions for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

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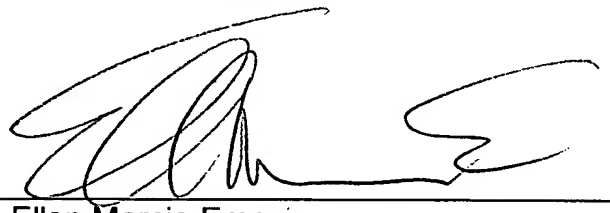
By: 

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